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ABSTRACT

Metacognition refers to the ability of learners to be aware of and monitor their learning processes. Cognitive skills are those needed to perform a task, whereas metacognitive skills are necessary to understand how it was performed. Metacognitive skills are generally divided into two types: self-assessment (the ability to assess one's own cognition) and self-management (the ability to manage one's further cognitive development). Successful adult learners employ a range of metacognitive skills and effective teachers of adults attend to the development of these skills. According to the research on self-assessment, learners who are skilled in metacognitive self-assessment and are therefore aware of their abilities are more strategic and perform better than those who are unaware. Most of the literature on metacognition in adult learning deals with self-management skills. Much of this material stresses the role of instructors in enhancing learner cognition. Teachers who are aware of their own metacognitive functioning tend to play a more significant role in helping learners develop skills in metacognition. One important theme in the area of developing self-management skills in metacognition is the relationship between metacognition and constructivist learning theory. (A 17-item annotated bibliography and list of 4 World Wide Web sites constitute approximately 80% of this document.) (MN)

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Trends and Issues Alert No. 39

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TRENDS AND ISSUES ALERT

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Metacognitive Skills for Adult Learning

Metacognition refers to the ability of learners to be aware of and monitor their learning processes (Peters 2000). Although related, cognition and metacognition differ: cognitive skills are those needed to perform a task whereas metacognitive skills are necessary to understand how it was performed (Rivers 2001; Schraw 1998). Metacognitive skills are generally divided into two types: *self-assessment* (the ability to assess one's own cognition) and *self-management* (the ability to manage one's further cognitive development) (Rivers 2001). Successful adult learners employ a range of metacognitive skills and effective teachers of adults attend to the development of these skills. This **Alert** describes some of the trends related to metacognitive skills for adult learners and provides a list of resources for further information.

Trends in the literature on metacognition can be grouped around the two types of metacognitive skills. Literature on self-assessment deals with the importance of learners being able to assess their knowledge and abilities. Research indicates that learners who are skilled in metacognitive self-assessment and, therefore, aware of their abilities are more strategic and perform better than those who are unaware (Rivers 2001; Schraw and Dennison 1994). Examples of instruments for assessing metacognitive skills can be found in Mokhtari and Sheorey (2002) and Schraw and Dennison (1994). The use of such instruments can help learners to incorporate strategies that will improve metacognition (Mokhtari and Sheorey 2002).

Most of the literature on metacognition in adult learning is related to the area of self-management skills. The role of instructors in enhancing learner cognition is stressed in much of the material on self-management. Teachers who are aware of their own metacognitive functioning tend to play a more significant role in helping learners develop skills in metacognition (Sternberg 1998). Suggestions for instructors can be found in several sources including Cromley (2000); Field (1999); Language Australia (2000); Saunders, Batson, and Saunders (2000); and Schraw (1998). Helping adult learners improve their self-management skills through the use of specific techniques is the subject of some articles. Daley (2002), for example, describes how she used concept mapping to help adult learners become more aware of and understand their learning processes. Kuiper (2002) used self-regulated learning strategies to help nurses improve their metacognition so that they could function more effectively in practice.

A subset of the trend of developing self-management skills in metacognition is the relationship between metacognition and constructivist learning theory. Constructivist teaching and learning theory is an approach to learning that "locates cognition and understanding within the individual" (Daley 2002, p. 21). Daley (ibid.), Kuiper (2002), and Peters (2000) all point out how use of constructivist learning with its emphasis on self-reflection and knowledge construction can contribute to the development of skills in metacognition.

Resources

Cromley, J. *Learning to Think, Learning to Learn: What the Science of Thinking and Learning Has to Offer Adult Education*. Washington, DC: National Institute for Literacy, 2000. (ED 440 258) http://www.nifl.gov/nifl/fellowship/cromley_report.pdf

Developed for adult educators who teach in General Educational Development classrooms or for teacher trainers, this book contains 18 fact sheets on learning and thinking, each about 10 pages long. The fact sheets incorporate learning methods based on cognitive research and a set of short lesson ideas based on the findings.

D'Amico, D., and Capehart, M. A. "Letting Learners Lead: Theories of Adult Learning and TV411." *Focus on Basics* 5, issue B (October 2001): 35-41. http://www.gse.harvard.edu/~ncsall/fob/2001/fob_5ib.pdf

TV411, a national television series aimed at learners in adult basic education, is based on several beliefs about adult learning including the constructivist approach, metacognitive awareness, affective dimension of learning, and social theories of learning. Helping adults manage their own learning using metacognitive skills is emphasized in the series.

Daley, B. J. "Facilitating Learning with Adult Students through Concept Mapping." *Journal of Continuing Higher Education* 50, no. 1 (Winter 2002): 21-31.

Concept maps created by adult students were scored and students were interviewed. Use of the maps helped students develop thinking skills, promoted growth in understanding their learning processes, and fostered understanding of knowledge construction.

Field, M. L. "Adult Readers' Metacognitive Strategies: Theory and Practice." In *Pedagogy for Adult Learners: Methods and Strategies*, edited by D. W. Ntiri, pp. 83-116. Detroit, MI: Office of Adult and Lifelong Learning Research, Wayne State University, 1999. (ED 458 411)

Adults who have limited experience with reading are candidates for being trained in metacognitive reading strategies. Strategies and techniques described in this paper can be used by teachers across the curriculum to enhance the reading skills of adults learners. Research that supports the teaching of metacognitive strategies is reviewed briefly.

Justice, E. M., and Dorman, T. M. "Metacognitive Differences between Traditional-Age and Nontraditional-Age College Students." *Adult Education Quarterly* 51, no. 3 (May 2001): 236-249.

Aspects of metacognition and motivation that may distinguish the learning processes of adults in higher education from those of traditional-age students were investigated. Older students reported more use of two higher-level study strategies: generation of constructive information and hyperprocessing.

Kuiper, R. "Enhancing Metacognition through the Reflective Use of Self-Regulated Learning Strategies." *Journal of Continuing Education in Nursing* 33, no. 2 (March-April 2002): 78-87.

Using a comparative descriptive design, self-regulated learning strategies were used to enhance metacognitive critical thinking abilities. The data suggested that nursing education and practice consider using self-regulated learning prompts with new graduates to promote thinking strategies.

Language Australia. *Learning to Learn. ARIS Information Sheet*. Melbourne, Australia: Adult Education Resource and Information Service, Language Australia, 2000. (ED 448 287)

The difference between successful learners and those who are less effective may lie in understanding strategies and behaviors that enable them to acquire new information and skills. This information sheet synthesizes some of the current findings on adult learning processes and discusses their importance to adult education programs.

Liebler, R. A. "Assessing for Metacognition Competencies in an Adult Degree Completion Program." ***Access to Quality and Success: Applying Principles of Good Practice. AHEA 2000 Conference Proceedings, Chicago, Illinois***, edited by K. Lee. Adult Higher Education Alliance, 2000. (ED 446 214) http://www.ahea.org/Assessing.htm

Adult learners in higher education can be coached to reflect on their internal thought processes and develop metacognitive skills that can be used to consciously manage their own learning. A process used to develop and assess metacognition is described using the example of writing.

Mokhtari, K., and Sheorey, R. "Measuring ESL Students' Awareness of Reading Strategies." ***Journal of Developmental Education*** 25, no. 3 (Spring 2002): 2-4, 6, 8, 10.

The ***Survey of Reading Strategies (SORS)***, an instrument designed to measure adolescent and adult ESL students' metacognitive awareness and perceived use of reading strategies while reading academic materials, is described. Guidance is provided for using the SORS as a means of raising learner awareness of reading strategies and practical suggestions for improved practices in developmental reading instruction are included. The complete survey is included.

Nuissl, E. "Learning to Learn—Preparing Adults for Lifelong Learning." ***Lifelong Learning in Europe*** 6, no. 1 (2001): 26-31.

Metacognitive strategies support individual development and make learning transparent to the learner. Techniques such as modeling, coaching, scaffolding, fading, reflecting, and exploring are essential to maintain and improve the ability to learn throughout life.

Peters, M. "Does Constructivist Epistemology Have a Place in Nurse Education?" ***Journal of Nursing Education*** 39, no. 4 (April 2000): 166-170.

Constructivism is congruent with adult learning theory and has potential for the development of metacognitive skills that are an important facet of active and self-directed learning. Metacognitive skills enable students to develop as independent learners by enabling them to become self-managers and appraisers of their own thinking and learning.

Rivers, W. "Autonomy at All Costs: An Ethnography of Metacognitive Self-Assessment and Self-Management among Experienced Language Learners." ***Modern Language Journal*** 85, no. 2 (Summer 2001): 279-290.

Research in cognition has shown that expert learners in diverse fields approach new learning tasks differently than novice learners. Self-directed learning behaviors of adult third-language learners were analyzed using qualitative data. All learners regularly assessed their progress, learning styles, strategy preferences, and conflicts with teaching styles and with the behaviors of other learners.

Saunders, N.; Batson, T.; and Saunders, G. "The Impact of Instructional Strategies on the Development of Meta-Skills in the Adult Learner." Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA, April 24-28, 2002. (ED 446 218)

A study focusing on the relationship between instructional strategies and learners' reported meta-skill attainment in an adult education context found that clusters of instructional activity (i.e., andragogy, assessment, curriculum, faith) tended to function together in relation to learners' reported meta-skill attainment, with the area of curriculum most strongly correlated with reported attainment of all meta-skills. The instructional strategies in the curriculum area focused on clear and understandable content, taught in a learner-centered, collaborative context.

Schraw, G. "Promoting General Metacognitive Awareness." ***Instructional Science*** 26, no. 1-2 (March 1998): 113-125.

Two aspects of metacognition, knowledge of cognition and regulation of cognition, are described, including their relationship to domain-specific knowledge and cognitive abilities. The following instructional strategies for promoting the construction and acquisition of metacognitive awareness are discussed: promoting general awareness, improving self-knowledge and regulatory skills, and promoting learning environments that are conducive to the construction and use of metacognition.

Schraw, G., and Dennison, R. S. "Assessing Metacognitive Awareness." ***Contemporary Educational Psychology*** 19, no. 4 (October 1994): 460-475.

A 52-item inventory was constructed to measure the metacognitive awareness of adults. Items were classified into eight subcomponents under categories of knowledge and regulation of cognition. Implications for assessment were identified.

Smith, R. M. ***Learning How to Learn. Applied Theory for Adults.*** Chicago: Follett, 1982.

Linking theory to practice, this book presents a comprehensive description of the idea of learning how to learn in adulthood. The theoretical bases are covered in part one, with part two focusing on developing learning skills and understanding. The third section provides guidelines for providing training in learning how to learn.

Sternberg, R. "Metacognition, Abilities, and Developing Expertise: What Makes an Expert Student?" ***Instructional Science*** 26, nos. 1-2 (March 1998): 127-140.

Metacognition is an important part of human abilities that are, in turn, forms of developing expertise. Metacognition can be understood as one part of the abilities that lead to student expertise.

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